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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/996,239	11/28/2001	Hans Steinbichler	298-147	2967

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EXAMINER

LYONS, MICHAEL A

ART UNIT PAPER NUMBER

2877

DATE MAILED: 04/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/996,239

Applicant(s)

STEINBICHLER ET AL.

Examiner

Michael A. Lyons

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may, under an earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

**Claims 1-27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**

The claims are generally narrative and indefinite, failing to conform with current U.S. practice. They appear to be a literal translation into English from a foreign document and are replete with grammatical and idiomatic errors.

A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the present instance, claim 1 recites the broad recitation "objects", and the claim also recites "the object", which is the narrower statement of the range limitation.

Also, with regards to the above rejection, claim 2 recites the broad recitation "an interferometry process", and the claim also recites "preferably with holographic interferometry . . .", which is the narrower statement of the range/limitation. Claim 3 recites the broad recitation "recorded with a projection process", and the claim also recites "preferable with a grid projection process . . .", which is the narrower statement of the range limitation. Claim 6 recites the broad recitation "with coherent radiation or coherent light", and the claim also recites "particularly laser light", which is the narrower statement of the range/limitation.

Claim 1 recites the limitation "the differential" in line 5. There is insufficient antecedent basis for this limitation in the claim. What differential is being referred to?

Claim 4 recites the limitation "the images" in line 3. There is insufficient antecedent basis for this limitation in the claim. What images are being referred to?

Claims 4 and 5 recite the limitation "the phase image" in lines 1-2. There is insufficient antecedent basis for this limitation in the claim. What phase image is being referred to?

Claim 17 recites the limitation "the whole-body deformation" in line 2. There is insufficient antecedent basis for this limitation in the claim. What whole-body deformation is being referred to here?

Claims 23-27 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: in each of claims 23-27, there is no clear determination of what element in claim 20, which only lists a measuring device and an evaluation device, that the dependent claims limit.

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***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States

**Claims 20-27 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Pouet et al (5,481,356).**

Regarding claim 20, Pouet (Figs. 1&3) discloses an interferometer (elements 1, 3, 5, 7, 9, 11, 15, 17, and 21) as a measuring device for recording the sequence of images from an object, and computers 65 and 67 as an evaluation device for performing necessary calculations.

As for claim 21, Pouet discloses an interferometer.

As for claim 22, lens 15 projects light 17 onto object 19.

As for claim 23, Pouet discloses computers 65 and 67.

As for claims 24 and 25, Pouet discloses laser 1.

As for claims 26 and 27, Pouet discloses a video camera inside element 21.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various

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claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

**Claims 1-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pouet et al (5,481,356).**

Regarding claim 1, Pouet discloses a device where "a video camera discloses a series of interferometric images of a test object" undergoing varying levels of deformation due to stress. During the process, the phase of the light is changed, and a new set of images is taken. This successive image set is then subtracted from the first set, revealing the deformations of the object under stress (abstract).

While this is not identical to the claimed method, Pouet does disclose the claimed apparatus (see claim 20 above), and the method above generates the same result as would be created by taking the differential of two sequential images and adding it to the first image to reveal deformations. It would have been obvious to one of ordinary skill in the art at the time the invention was made to add a differential image to an original image to observe the differences between the two images.

As for claims 2, 4, and 5, Pouet's device works through phase-modulated interferometry.

As for claim 3, the device uses lens 15 (Fig. 1) to project light 17 upon the object under stress.

As for claim 6, Pouet discloses laser 1.

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As for claims 7 and 8, the use of one or several laser diodes is well known.

As for claims 9 and 10, having the laser diode light either overlap or not overlap is a matter of design choice.

As for claim 11, a video camera in element 21 acts as a sensor for the device. It is well known for video cameras to be hand held.

As for claims 12-14 and 17-19, it is common practice to remove undesired information when determining a final result.

As for claim 15, Pouet discloses video camera in element 21 to capture video frames.

As for claim 16, the device subtracts subsequent images of different phases for comparison.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US Pat. 4,850,693 to Deason et al, a compact portable diffraction moiré interferometer, US Pat. 6,031,602 to Parker et al, a method and apparatus for inspecting or testing a sample by optical metrology, US Pat. 6,128,082 to Cloud, a technique and apparatus for performing electronic speckle pattern interferometry, and US Pat. 6,417,916 to Dengler et al, a method and apparatus for examining test pieces.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael A. Lyons whose telephone number is 703-305-1933. The examiner can normally be reached on Monday thru Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G Font can be reached on 703-308-4877. The fax phone numbers for the

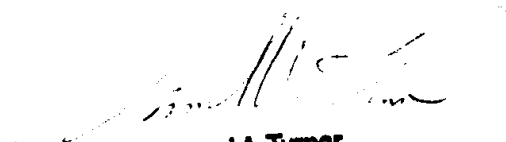
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organization where this application or proceeding is assigned are 703-308-0725 for regular communications and 703-308-0725 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0935.

MAL

April 8, 2003



**Samuel A. Turner**  
Primary Examiner